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Koji Shigemura

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EXAMINER

LIN, JAMES

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/717,571	<b>Applicant(s)</b> SHIGEMURA, KOJI	
	<b>Examiner</b> Jimmy Lin	<b>Art Unit</b> 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-19, 21 and 22 is/are pending in the application.
- 4a) Of the above claim(s) 1-5 and 7-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14-16, 21 and 22 is/are rejected.
- 7) ☒ Claim(s) 17-19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 22 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification does not fully support the limitation “wherein the flat frame and the flat cover mask *are the only elements that touch the flat mask*” (claim 22, emphasis added by Examiner). For example, the specification teaches that the mask, cover mask, and frame can be joined together using an adhesive agent such as welding [0045]. The adhesive agent necessarily contacts the mask. Therefore, the frame and cover mask are not the only elements that touch the mask because the adhesive agent would come into contact with the mask as well.

Additionally, the specification does not have the disclosure of the genus of all methods for having the frame and cover mask being the only elements that touch the mask. For example, clamping of the frame and the cover mask can achieve the structure as claimed, but the specification does not provide a disclosure of clamping.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1792

4. Claims 14-16 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Utsugi et al. (U.S. Publication No. 2002/0150674) in view of Martin (U.S. Patent No. 4,676,193).

Utsugi teaches a method of manufacturing an organic EL device, the method comprising:

forming a first electrode layer 11 in a predetermined pattern on an insulating substrate 10 [0038], [0044];

forming an organic film comprising at least a patterned emission layer 13 on the first electrode layer [0049];

forming a second electrode layer 15 in a predetermined pattern on the organic film [0038];

wherein the organic film and the second electrode layer are vapor deposited using a deposition mask frame assembly [0053]-[0054],[0058] comprising:

a mask comprising a thin plate 95 in which a predetermined pattern of apertures is formed (Figs. 2-4).

Utsugi does not explicitly teach a frame supporting one surface of the mask so that the mask is tensed and a cover mask supporting an opposite surface of the mask.

Martin discloses a mask assembly that is suitable for vacuum vapor deposition (column 1, lines 13-21 and column 2, lines 54-59). Fig. 7 shows a mask assembly 32 comprising: a mask 40', a frame 34, and a cover mask 88. The frame and cover mask sandwich the mask. It would have been obvious to one of ordinary skill in the art at the time of invention to have used the mask assembly of Martin in the EL vacuum evaporation of Utsugi. One would have been motivated to do so with the expectation of using a mask assembly that is dimensionally stable at the operating temperatures of vacuum evaporation.

The mask in Fig. 7 of Martin does not have a flat surface extending over an entire area of the mask. In particular, a raised boss member 98 of the cover mask defines a clamping member counterbore (col. 10, lines 47-50) and causes the mask to lie in two separate planes. The clamping member counterbore seems to hold the entire mask assembly together, which would in turn provide the means for affixing the mask. One of ordinary skill in the art would realize that the elimination of the raised boss member and clamping member counterbore would result in the

Art Unit: 1792

loss of such functions. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have omitted the raised boss member and clamping member (i.e., such that the mask would have a flat surface extending over an entire area of the mask) with the expectation of losing the clamping function. It should be noted that the only difference between the claimed mask structure and that as disclosed in Martin is that the mask structure of Martin is not completely flat because claim 14 does not require any sort of method of keeping the mask structure together. The mask of Martin as disclosed in Fig. 7 actually has the advantage over the claimed mask structure because the mask structure of Martin has a function of keeping the frame, mask, and cover frame together.

Claim 15: Utsugi teaches that a mask can contain nickel [0042].

Claim 16: Martin teaches that the mask can be formed by electro-forming (column 1, lines 28-31).

Claim 21: Martin teaches that the mask has substantially uniform tension (abstract). In other words, the tension of the mask may not be completely uniform. Thus, the tension of the mask may vary at different points.

5. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Utsugi '674 in view of Martin '193 as applied to claim 14 above, and further in view of Yamada et al. (U.S. Publication No. 2001/0019807).

Utsugi and Martin are discussed above, but do not explicitly teach that the mask can be *completely* formed of nickel or an alloy of nickel and cobalt.

Yamada teaches a method of vapor depositing EL materials with a mask, wherein the mask can be made of a metal such as nickel [0022]. The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have made the vapor deposition mask of Utsugi and Martin out of nickel with a reasonable expectation of success because Yamada teaches that nickel masks are suitable in the art for vapor deposition.

Art Unit: 1792

6. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Utsugi '674 in view of Martin '193 as applied to claim 14 above, and further in view of Fujimori et al. (U.S. Publication No. 2002/0102754).

Utsugi and Martin are discussed above, but do not explicitly teach that the frame and cover mask are the only elements that touch the mask. In particular, adjusting means 64 of Martin is mounted and extended through supporting aperture 72 and supplemental supporting aperture 96 (col. 11, lines 1-4). Such adjusting means may come in contact with the mask when extended through the apertures (Fig. 7). The adjusting means seem to include a prealigned registration member 60 and a registration pin 62 (col. 9, lines 30-36; Fig. 1). The registration pin seems to be used for aligning the mask assembly to the gantry assembly, wherein the gantry assembly includes the deposition substrate and wherein the registration pins of the mask are aligned to the registration members 162,164,166 of the gantry (col. 18, line 54-col. 19, line 34; Figs. 21-23). In essence, the registration pin is used to provide a proper alignment of the mask to the substrate. However, Fujimori teaches that alignment marks on the mask and substrate with the use of a camera can be used for to make the proper alignment [0066]. Alignment marks 6 are simple indications on the surface of the frame of the mask and would not require any contact with the mask. Substitution of equivalents requires no express motivation (see MPEP 2144.06). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to used alignment marks as opposed to the registration pins and registration members of Martin to align the mask to the substrate with a reasonable expectation of success because Fujimori teaches that alignment marks is an operable equivalent for aligning the mask to the substrate.

### ***Response to Arguments***

7. Applicant's arguments filed 2/14/2008 have been fully considered but they are not persuasive.

#### **Rejection 1:**

Applicant argues on pg. 9 that present application discloses that the welding dots can be formed by dot welding, resistance dot welding, or laser dot welding and that such a disclosure would convey to one skilled in the relevant art that the inventor had possession of claim 22.

Art Unit: 1792

However, claim 22 requires "wherein the flat frame and the flat cover mask are the only elements that touch the flat mask". The claim does not require anything about welding nor does it suggest that it is only limited to welding, much less the exemplified welding techniques as discussed above. Throughout the present specification, only welding techniques are mentioned.

Additionally, paragraph [0069] teaches the advantages of the present invention with respect to welding. The genus of claim 22 "wherein the flat frame and the flat cover mask are the only elements that touch the flat mask" is broader than the disclosed species of dot welding, resistance dot welding, or laser dot welding because the genus of claim 22 at least includes a clamping method, which is not suggested or disclosed in the present specification. Thus, the subject matter of claim 22 is considered new matter under 35 U.S.C. 112, 1<sup>st</sup> paragraph.

Applicant argues on pg. 9-11 that the disclosure of resistance welding, dot welding, laser welding, and laser dot welding in the present specification constitutes a sufficient description of a representative number of species of the alleged claimed "genus of all methods for having the frame and the cover mask being the only elements that touch the mask. Applicant cites MPEP 2163.05(I) as support. However, resistance welding, dot welding, laser welding, and laser dot welding are only representative of welding methods and claim 22 is not limited to only welding. Claim 22 encompasses the method of clamping the frame, mask, and cover mask, but such a method is not disclosed in the present specification.

#### Rejection 2:

Applicant argues on pg. 12-13 that the mere weight of the modified clamping member 88 pressing down on the stretched metal foil 40' as shown in the diagram of the modification of Fig. 7 would not be able to maintain at least some of the radial tension in the stretched metal foil 40' in light of the extremely high tension (i.e., 1,000 pounds per square inch) in the metal foil 40' described in col. 8, lines 50-62. However, one of ordinary skill in the art would have recognized that a reduced amount of tension could be provided with the removal of the clamping member. One would have expected the modified mask assembly to have provided at least some tension on the stretched metal foil and would have at least expected the modified mask assembly to have been operable. Additionally, claim 14 merely requires placing a frame, mask, and cover mask on top of each other without any requirement of a means of affixing, such as

Art Unit: 1792

welding, the mask assembly together. The modified mask assembly of Martin has the structure as claimed and, thus, must necessarily be operable.

Rejections 3-4:

Examiner maintains his position as cited in the Examiner's Answer filed 12/19/2007.

Rejection 5:

Applicant argues on pg. 15-16 that Fujimori's alignment method is an example of the very prior-art alignment method having the problems that are solved by Martin's alignment method and that one of ordinary skill in the art would not consider the alignment methods disclosed by Martin and Fujimori to be operable equivalents. However, Martin merely acknowledges the prior-art alignment method and never teaches that such alignment methods were disadvantageous. Martin only seems to teach that the disadvantages of the prior art were the variations in the thermal expansion of the mask during a deposition process. Martin seems to provide a solution to overcome such problems. The variations in thermal expansion of the mask have nothing to do with the alignment methods. Thus, Martin does not teach away from using the alignment method of Fujimori.

Rejections 6-9:

The arguments are directed toward the rejection using the teachings of Tsuchiya. However, the claims have been amended to be commensurate in scope with the foreign priority document, thus removing Tsuchiya as a prior art reference. The rejections have been withdrawn and the arguments are moot.

***Allowable Subject Matter***

8. Claim 17-19 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.



Art Unit: 1792

9. The following is a statement of reasons for the indication of allowable subject matter: The modified mask assembly of Martin as discussed above includes removing affixing function of Fig. 7. One of ordinary skill in the art would not have been motivated to add a different method for affixing the mask assembly together and, thus, would not have been motivated to have welded the mask assembly together. Although Martin teaches in one embodiment welding of a mask to a frame and in a second embodiment clamping of a frame, mask, and cover mask assembly, the combination of the two embodiments together would have resulted in picking and choosing of the embodiments to arrive at the claimed invention. There would be no reason to keep the cover mask of Fig. 7 when using the welding method of Figs. 1-6. In addition, the present specification teaches advantages of the combination of using a cover mask when welding the mask to a frame. The generation of cracks due to welding of a mask and a frame can be minimized when used in combination with a cover mask. Thus, the present specification teaches that the combination of methods achieves unexpected results.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy Lin whose telephone number is (571)272-8902. The examiner can normally be reached on Monday thru Friday 8AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jimmy Lin/

Application/Control Number: 10/717,571  
Art Unit: 1792

Page 9

Examiner, Art Unit 1792

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Supervisory Patent Examiner, Art Unit  
1792